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INCREASED OUTPUT OF BUILDING MATERIALS IN USSR

Promyshlennost' Stroitel'nykh Materialov,
Moscow, 10 Jan 1953

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The enormous increase in construction in the USSR is creating great demands upon the construction materials industry. The industry will have to improve the quality, expand the variety, and at least double the output of basic building materials during the Fifth Five-Year Plan.

It will have to produce 2.3 times as much brick, 2.6 times as much slate, 4 times as much polarized glass, and approximately 2.2 times as much cement as in the Fourth Five-Year Plan. In addition, the Ministry of Construction Materials Industry USSR is planning to produce 2.8 times as much tile, 1.4 times as much ceramic facing plate, 4.1 times as much ceramic floor slabs, 1.6 times as much rolled roofing material, 4.7 times as much asbestos cement pipe, 9.5 times as much ceramic pipe, 1.8 times as much lime, 2 times as much gypsum, and 1.4 times as much gypsum wallboard as in the Fourth Five-Year Plan.

By the end of the Fourth Five-Year Plan, as compared to 1940, the industry produced 1.8 times as much cement, 1.4 times as much brick, 2.6 times as much slate, 5.1 times as much standard housing, 1.6 times as much ceramic floor slabs, 2.8 times as much asbestos cement pipe, 2.2 times as much tile, and 3.9 times as many radiators. The output of all types of building materials surpassed the prewar level considerably.

An increase in the output of building materials, proportionally greater than in the USSR as a whole, is contemplated in the Urals, Siberia, rayons of the Volga Region, the Far East, Central Asia, and large industrial centers, where large-scale construction work is taking place.

In 1955 the output of various types of building materials is expected to be raised to the following level:

Reinforced-concrete structural products	900,000 cu m
Brick (1 1/2, double perforated, hollow): ceramic hollow blocks; other wall materials	3.5 million units
Front facing ceramic blocks and slabs	1.6 million sq m
Face and finish brick	400 million units
Gypsum structural products	3.6 million sq m
Gypsum plasterboard	39 million sq m
Armored ruberoid	44 million sq m
Foam glass	55,000 cu m
Wood fiberboard	11.2 million sq m

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It is expected that this contemplated increase in production will make it possible to cut the cost of building materials 25-30 percent in 1956.

The extensive industrial expansion program requires the construction or reconstruction of plants on a large scale. During the Fifth Five-Year Plan, 600 plants, including more than 300 on the republic level, will have to be put into operation. The contemplated capital construction program is three times greater than during the postwar Five-Year Plan.

Cement

During the postwar Five-Year Plan, the cement industry more than doubled its prewar output. The building of new plants continues. They are equipped with large 150-meter kilns capable of turning out 27-28 tons of clinker per hour and with modern grinding machinery capable of producing 30 or more tons of cement per hour. In the quarries, manual labor has been replaced by modern USSR-made machinery. Quarrying operations are, on an average, 99 percent mechanized throughout the industry. In most of the enterprises, extractive and hauling operations are completely mechanized.

To increase kiln output, the industry is reconstructing the kilns. In addition, by water cooling the kilns, the industry will be able to increase hourly kiln output 30 or more percent.

Besides increasing the output of new types of cement, the industry expects to increase the output of cement for oil-well casings, of alumina cement, and of decorative white and colored cements during the Fifth Five-Year Plan. In 1955, it expects to produce 13 times as much sulphate-resisting cement, 33 times as much dilating cement, and 2.5 times as much white and colored cement as in 1950. At the same time, it expects to improve the quality of cement on an average of 13.5 percent.

Wall Materials

During 1945-1950, the brick plants of the construction materials industry increased their output more than sevenfold, exceeding the prewar level [1940] 1.5 times.

Most of the brick industry is now mechanized. Some of the seasonal plants have constructed artificial dryers, so that 65 percent of the total brick output of the industry now comes from year-round plants. By the end of the Fifth Five-Year Plan, brick output will have to be increased approximately 2.3 times.

The needs of the population for wall materials are expected to be met fully during the Fifth Five-Year Plan. The extraction of shell-rock stone and tuff, and the production of slag blocks and other brick substitutes will be more than doubled. This objective will be accomplished by further modernizing work methods, by using equipment more advantageously at existing plants, and by constructing large mechanized plants.

At the same time, more of the seasonal brick plants will be converted to year-round operations, and the setting of brick into ring kilns and the discharging therefrom will be completely mechanized. In those areas with a supply of raw materials, brick plants will be transformed into combines to produce wall materials, tile, sewer pipe, and other ceramic products.

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The production of silica brick and other nonkilned autoclave materials will be increased considerably, because less labor, fuel, and electric energy are required in production. By 1955, it is planned to increase the output of silica brick more than threefold. Large, completely mechanized silica brick plants with a capacity of 60-120 million bricks per year will be built in all large industrial centers of the country. It is planned to produce foam-silica and carbonized products in a majority of the new plants. In all the new plants, the disintegrating method will be used to prepare the mass, thus making it possible to produce tile and other products, as well as brick.

The production of brick by the dry-press method will also be expanded further within the next few years.

It is planned to build large block-manufacturing plants in a number of industrial centers in 1953. The advantages of slag-concrete plants over brick plants are: lower capital investments, less labor in plant construction, and cheaper production costs due to less labor, fuel, and electrical energy being required.

Structural Ceramics

Lately, the demand for ceramic products has been much greater than for any other building materials. At present, the supply of sewer pipe, glazed facing tile, and ceramic floor tile does not meet the demand. To cut this gap between supply and demand, by 1955 it is planned to produce 14 times as much glazed facing tile, almost 10 times as much ceramic sewer pipe, and more than 4 times as much ceramic floor tile as in the Fourth Five-Year Plan. To accomplish this objective, the work at existing plants will have to be accelerated, and new plants will have to be built. The construction of new plants will also improve the geographical distribution of the industry by bringing the plants closer to the areas where demands are great for the products.

Several plants producing sanitary-technical equipment have already started making plant improvements, with the objective of increasing output, cutting waste, and improving the quality of products.

A greater variety of glazed finishing tile and floor tile will be produced. To hasten the finishing work, it is necessary to produce different kinds of tile for the facing of building fronts, corners, cornices, baseboards, and door crossovers. More carpet mosaic and figured tile will be produced.

Significant changes will take place in manufacturing ceramic sewer pipe. The present laborious and prolonged method of fabricating pipes will be replaced by a continuous process.

The construction of tall buildings created demands upon the ceramic industry for producing highly durable and frost-proof materials to face building fronts. Although the industry lacked the experience and know-how, it soon adjusted itself to this type of production. By converting the Kudinovo and Kuchino plants to the production of front-facing ceramics, about 4 million square meters will be produced during the next 3 years (1953-1955), or enough to face 50 high buildings.

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Asbestos Cement

The slate industry expanded the variety of its products considerably during the past few years. Before the war, it was producing only 40 x 40 centimeter flat plates and 80 x 120 centimeter corrugated plates for civilian needs. Now it is producing slabs up to 1 x 2.8 meters in large quantities for roofs and walls of industrial buildings and installations. In addition, it is producing various building items for subways and high buildings.

The USSR is now the largest producer of asbestos-cement products in the world, having surpassed both the US and UK. In 1952, the USSR produced four times as much slate and five times as much asbestos-cement pipe as in 1940.

All the slate plants have rebuilt their plate-forming machinery. Asbestos pipe is passed through hot water, and asbestos products are steamed, thus cutting the hardening period in half.

The slate plants recently built and being built now in the Urals, Siberia, the Far East, and Transcaucasia are enabling the asbestos-cement industry to improve its geographical location, and thus to cut the need for hauling over long distances.

Reinforced-Concrete Products

Manufacture of these products was not centralized until recently. They had been produced only by branch establishments of the construction trusts. A large mechanized industry of reinforced-concrete products and structures is now being established within the construction materials industry. The erection of 30 new plants in the areas where large-scale industrial and civilian construction is taking place will make it possible to produce 16.5 times more reinforced-concrete products in 1956 than in 1950.

The standard capacities of the plants being built are to be set at 30,000, 60,000, or 120,000 cubic meters per year, depending on the location of the plant. These capacities are considerably more than those of existing plants.

The use of sectional reinforced-concrete structures in new building projects will make it possible to erect 30-35 percent more building space without additional labor and to cut building costs at least 10 percent.

Standard Housing

The standard-housing industry is now producing homes with 2, 3, 4, or 6 rooms. The homes are faced with slate and equipped with central heating systems, kitchen ranges, and bathtubs. It is also producing eight-apartment two-story houses, boarding houses, and complete units of lumber for houses to be assembled later, with the walls to be made from local materials.

During 1945-1950, the industry produced about 3.4 million square meters of living space, or more than 25,000 homes for 800,000 people.

The homes are insulated with perforated wood fiberboard and mineral wool instead of slag and sawdust. Wet plaster is no longer used for interior finishing; instead, semirigid wood fiberboard, waterproof plywood, or dry plasterboard are used for interior walls or ceiling. The homes are finished on the outside with asbestos-cement plates. All parts of the home are pre-treated with an antiseptic to prolong their life.

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Waterproof bakelite [veneer?] board and glued joists and parts are being used widely. The glued items make it possible to use the small cuts of wood and thus save 20-25 percent on lumber.

During the Fifth Five-Year Plan, this industry is called upon to increase its output of standard homes 75 percent above 1950 and to produce nearly 2 million square meters of living space by 1955. More than 1.5 million persons will be able to live in the homes which the industry has been called upon to produce during 1951-55. The quality of the homes will also be improved. Roofs will be covered with gray instead of colored slate. Exterior walls will be finished with ceramic plates. Interior walls and ceilings will be finished with wood fiberboard covered with enamel and will have the appearance of valuable woods. The industry will also produce fashionable built-in and movable furniture.

Sanitary-Technical Equipment

The enormous increase contemplated in housing and civic construction during the new plan is creating greater demands for sanitary-technical equipment.

Glavsantekhprom (Main Administration of Sanitary-Technical Equipment Industry, Ministry of Construction Materials Industry USSR) is planning to produce 2-2.7 times more radiators and boilers in 1955 than in 1950. It also expects to produce 4 times more bathtubs and ventilators, 4.8 times more drain pipe, 3.8 times more sinks and wash basins, 3 times more toilet fixtures, and 5.3 times more window and door fixtures, thus making it possible to equip about 500,000 apartments per year with modern sanitary toilet fixtures.

This industry is now producing 73 types of taps and hot and cold water mixing faucets compared to 25 types it was producing before World War II. In the future, it expects to increase this number to 150-200. It also plans to produce new types of bathtubs and sanitary and technical fixtures for hospitals, schools, kindergartens, and other institutions.

Glass Products

In 1955, the glass industry plans to produce 4 times more polarized, armored, and ornamented glass; 2 times more stalinite glass, 2.3 times more fiber glass, and 1.8 times more triplex [safety?] glass than in 1950. In addition, it expects to increase its output of several types of glass which it has recently organized. This includes large shop-window glass, machine-made stained glass, foam glass, glass wool, and glass pipe for various uses.

The Misheroniski Glass Plant [Moskovskaya Oblast] is completing experiments on drawing out glass horizontally. This new method will enable the plant to produce higher-quality and larger glass sheets.

The Gusev Glass Plant imeni Dzerzhinskiy was the first glass plant in the USSR to install a Soviet-made conveyor to be used in the process of grinding and polishing glass. This will enable the plant to increase its output of high-quality polished glass.

The industry has developed methods to produce other new glass products, including corrugated glass roofing, large glass pipe and fittings, hollow wall blocks, and stained-glass facing plates.

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Gypsum

For the most part, this industry will be expanded to produce gypsum blocks, plates to be used as partitioning and between-story covering material, finishing materials, dry plasterboard, sound and heat insulation (foam gypsum and gasogypsum plates, and other products.

Since twice as much structural gypsum will be produced in 1955 as in 1950, 14 times as much dry plasterboard and 20 times as many types of gypsum structural materials should be produced in 1955. As a result, 60 percent of the gypsum being mined by the end of the Fifth Five-Year Plan will be shipped to construction projects in the form of manufactured products, compared with 10 percent by the end of the Fourth Five-Year Plan.

Lime

By improving the use of existing plant capacities and by intensifying technological methods, the lime industry will produce 1.8 times as much lime in 1955 as in 1950.

In addition to producing ordinary bulk lime, several plants are making plans to produce ground unslaked lime, slaked lime, and other dry plaster admixtures.

Soft-Roofing Materials

The soft-roofing industry will produce more armored ruberoid and colored bitumen plates for floors and for finishing walls than any other type of soft-roofing materials.

Rock Products

Builders are making greater demands for natural stone as a facing material. In 1955, it is expected to produce 5.9 times as much granite block and 4.6 times as much marble block as in 1950. Also, more than twice as much granite and marble slabs are to be produced.

During the Fifth Five-Year Plan, a new branch of the construction materials industry is to be started and expanded. This is the manufacture of stone, stone blocks, rubblestone, and other items from metallurgical slag. Shops which will further process the blast-furnace slag and granulating installations which will operate by the semidry method will be erected at the larger metallurgical plants.

To fulfill its objectives under the Fifth Five-Year Plan, the construction materials industry, in general, will have to eliminate several serious defects. In the first place, several plants have been failing to fulfill their quotas and, as a result, several branches of the industry have failed to fulfill their quotas for 1952. In addition, several branches of the industry are still producing materials of poor quality. Losses due to waste are still enormous.

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